

Directions: All questions must be completed on loose leaf. A calculator is allowed. Please reduce any fractions to lowest terms. Place a box around your final answer. **ALL WORK MUST BE SHOWN FOR FULL VALUE.**

Part A:

/12

1) Simplify each of the following: (2 marks each)

a) $3x^2 - 5x + 4x^2 - x$ b) $2\frac{1}{2}c + \frac{2}{3}b + \frac{1}{2}c - \frac{1}{3}b$ c) $(xy + 4y - 7) + (2xy - 5y - 3)$

d) $\left[\left(\sqrt{y^4}\right)\left(\sqrt{y^8}\right)\right]^4$ e) $(-3.7) \times (-2.8 + 1.5) - 4.8 \div (-1.2)$

f) $\left((k^2)(k^3)\right)^3 \div \left((k^4) \div (k^2)\right)^3$

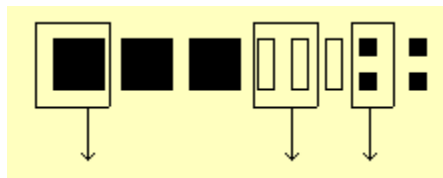
Part B: Please answer all questions. 3 marks each

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1) The perimeter of an isosceles triangle is $(7x + 4)$ units. What are three possible expressions for the lengths of each side?

2) One side of a square sheet of metal is $7xy$ units. What's the perimeter and area?

3) Write a subtraction sentence that is represented by the following diagram:
(light is positive, dark is negative)



4) The difference of two polynomials is $3x^2 + 4x + 2$. One polynomial is $6x^2 + 5x + 4$. What is the other polynomial? Show two possible answers.

Part C: Complete question 1 and choose any 2 of the remaining 3 questions.
4 marks each /12

1) Solve: $\left(\frac{x^3y^4}{x^2y^2}\right)\left(\frac{x^3y^4}{xy}\right) \div \left(\frac{x^2y^3}{xy^2}\right).$

2) The area of a rectangular board is $6x^2 + 12x$ square units. The length is $6x$ units.

- i. What is the width of the rectangle?
- ii. Evaluate the width if $x = 8$?
- iii. Does halving the value for x also halve the width? Why or why not?

3) Snoppy is a plumber. He charges \$50 to visit a job site. His hourly rate is \$55.50. Charlie Brown repairs furnaces. He charges \$55 for a service call plus \$38.75/h. Let x represent the number of hours they work.

- a) Represent Snoppy's bill as a polynomial
- b) Represent Charlie Brown's bill as a polynomial
- c) Write a new polynomial that represents Snoppy's and Charlie Brown's combined charge, assuming that they both work x hours at a site.
- d) Calculate their combined charge if they both work 8 hours at the same complex.

4) The polynomial $30p + 40f + 80$ represents the amount of ink, in millilitres, of printing p posters and f flyers in colour. The polynomial $22p + 30f + 35$ represents the amount of ink, in millilitres, of printing p posters and f flyers in black-and-white.

- a) Write a polynomial for the difference in the amount of ink needed to print the two types of posters and flyers.
- b) How much ink is saved if someone prints 210 posters and 180 flyers in black-and-white instead of colour?